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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,474	09/30/2005	Katsuhiro Yada	051023-0027	4393
20277 7590 01/16/2008 MCDERMOTT WILL & EMERY LLP 600 13TH STREET, N.W. WASHINGTON, DC 20005-3096			EXAMINER SINGH, DALZID E	
			ART UNIT 2613	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/551,474

**Applicant(s)**

YADA, KATSUHIRO

**Examiner**

Dalzid Singh

**Art Unit**

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/30/05 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 1, 6 and 13 recite, "... a wavelength of a light source for a signal that generates downstream signal light is set to a wavelength with an effect of Raman amplifying an upstream light signal that propagates through the optical fiber..." It is unclear how this is performed.

As originally filed, page 24 paragraph [0064] of the specification recites "Because the light having a wavelength of 1.4 um from the High LD in the base station 1 has a wavelength about 0.1 um shorter than light for an upstream signal having a wavelength of 1.5 um, it is possible to amplify light for an upstream signal having a wavelength of 1.5 um in the optical fiber 2." This merely suggests that having wavelength difference of 0.1 um of the between the two signals, it is possible to amplify the light. Furthermore, the disclosure does not positively recite that amplification occurs, but

rather suggests the *possibility* for amplification. The specification does not clearly disclose to one of ordinary skill in the art how the amplification occurs. Therefore the specification fails to provide enabling disclosure for claims 1, 6 and 13.

### ***Claim Objections***

3. Claims 5, 10, 11, 12, 24 and 26 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only and/or cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Since it is unclear what applicant intended to claim, therefore, the following rejection is made based in view of the 112 1<sup>st</sup> paragraph rejections. Based on this, for purpose of rejection, amplification has been considered to occur if the wavelength difference between signals is 0.1  $\mu\text{m}$ .

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 6, 13, 14, 17, 18, 20, 23 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakamoto et al (US Patent No. 6,930,823).

Regarding claim 1 (in view of 112 rejection), Wang et al disclose an optical communications system in which a base station and a local station are connected using an optical fiber (see Fig. 4), the optical communications system being characterized in that a wavelength of a light source for a signal that generates downstream signal light is set to a wavelength with an effect of Raman amplifying an upstream light signal that propagates through the optical fiber, and an upstream light signal transmitted between the base station and the local station is amplified in the optical fiber while the upstream light signal is propagating through the optical fiber (see col. 6, lines 65-67 to col. 7, lines 1-30).

Regarding claim 6, Nakamoto et al disclose a PON (Passive Optical Network) system in which a base station and an optical branching station equipped with a passive optical divider are connected using a backbone optical fiber, and the optical branching

station and plural local stations are connected individually using branch optical fibers (as shown in Fig. 4), the PON system being characterized in that a wavelength of a light source for a signal that generates downstream signal light is set to a wavelength with an effect of Raman amplifying an upstream light signal that propagates through the backbone optical fiber, and an upstream light signal transmitted between the base station and each local station is amplified in the backbone optical fiber while the upstream light signal is propagating through the backbone optical fiber (see col. 6, lines 65-67 to col. 7, lines 1-30).

Regarding claim 13, a PON (Passive Optical Network) system in which a base station and an optical branching station equipped with a passive optical divider are connected using a backbone optical fiber, and the optical branching station and plural local stations are connected individually using branch optical fibers, as shown in Fig. 4, the PON system being characterized by comprising:

a light source for amplification that generates light for amplification having a wavelength with an effect of amplifying a light signal propagating through an optical fiber (including a backbone optical fiber and a branch optical fiber, and the same applies hereinafter); and an optical multiplexer/demultiplexer used to pump the light for amplification into the optical fiber, wherein, in the optical fiber, a light signal transmitted between the base station and each local station is amplified while the light signal is propagating through the optical fiber (see col. 6, lines 65-67 to col. 7, lines 1-30).

Regarding claim 14, wherein Raman amplification is used as a function of amplifying a light signal, and the light for amplification propagates in a direction opposite to the signal light (see Fig. 4).

Regarding claim wherein an erbium-doped fiber (EDF) (101) is used as a function of amplifying the light signal, and the signal for amplification is in the same direction as the signal light (see Fig. 5).

Regarding claim 17, wherein the light source for amplification and the optical multiplexer/demultiplexer are provided in the base station, and the light for amplification is pumped into the backbone optical fiber from the base station toward the optical branching station (see Fig. 4 and 5).

Regarding claim 18, wherein the light source for amplification and the optical multiplexer/demultiplexer are provided in the optical branching station, and the light for amplification is pumped into the backbone optical fiber from the optical multiplexer/demultiplexer toward the base station (see Fig. 4 and 5).

Regarding claim 20, wherein the light source for amplification and the optical multiplexer/demultiplexer are provided in the optical branching station, and the light for amplification is pumped into the branch optical fiber by way of the passive optical divider toward the local station.

Regarding claim 23, wherein the optical multiplexer/demultiplexer is provided in the optical branching station; an optical fiber is provided between the base station and the optical branching station besides the backbone optical fiber, and the light source for

amplification is provided in the base station, and the light for amplification is supplied to the optical multiplexer/demultiplexer via the optical fiber, so that the light for amplification is pumped into the backbone optical fiber from the optical multiplexer/demultiplexer toward the base station (see Figs. 4 and 5).

Regarding claim 25, wherein an optical fiber is provided between the base station and the optical branching station besides the backbone optical fiber, and the light source for amplification is provided in the base station, so that the light for amplification is pumped into one optical path of the optical multiplexer/demultiplexer on the local station side via the optical fiber toward the base station (see Fig. 5).

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Horiuchi et al (US Patent No. 6,188,508) is cited to show control signal superimposer.

Avallone et al (US Patent No. 7,254,326) is cited to show optical transmission system with Raman amplifiers comprising a supervisory system.

Yamazaki et al (US Patent No. 5,872,644) is cited to show fiber-optic access system for subscriber optical communication.

Ichikawa (US Patent No. 6,301,645) is cited to show bi-directional optical communications subscriber transmission system using a single wavelength.



Nakaishi (US Pub. No. 2002/0021472) is cited to show ATM-PON dual system, optical line terminal, optical network unit and ATM-PON dual method.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is (571) 272-3029. The examiner can normally be reached on Mon-Fri 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

January 09, 2008

DALZID SINGH  
PRIMARY EXAMINER

*Dalzid Singh*